

IN THE CLAIMS

1. (Currently Amended) A method of extracting two-dimensional image shapes of submicron structures formed by photolithography on semiconductor wafers, from a two-dimensional array of pixel data, the method comprising the steps of:

selecting obtaining intensity vs. pixel information ~~in~~ along a plurality of scans extending in different directions, through substantially the same point, in the vicinity of an edge of the image shape;

recognizing scans with sufficient contrast as containing edge information;

subjecting acceptable the recognized scans to an edge detection algorithm;

detecting the edge location of the image by using said edge detection algorithm; and

generating a locus of points that define the two-dimensional shape of the image from the detected edge values.

2. (Original) A method according to Claim 1, wherein the edge detection algorithm is a user defined edge detection algorithm that is tailored to the application.

Claim 3 (Cancelled).

4. (Currently Amended) A method according to Claim 1, wherein the selecting obtaining step includes the step of selecting obtaining intensity vs. pixel information in at least four directions.

SAC
CL

5. (Previously Presented) A method according to Claim 1, wherein one of said directions is normal to the approximate edge location.

6. (Currently Amended) Apparatus for extracting two-dimensional shape information from an image, of a submicron structure, formed on an array of detectors, comprising:

means for determining obtaining intensity vs. detector location information for detectors on a plurality of scans in a plurality of angularly different directions, through substantially the same point, in the vicinity of an edge of the image;

means for identifying scans having sufficient pixel contrast to provide edge information:

means for processing identified scans according to an edge detection algorithm to identify points on the edge of the image; and

means for generating a locus of points that define the two-dimensional shape of the structure from the identified edge points.

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COL-1*

7. (Original) Apparatus according to Claim 6, wherein the edge detection algorithm is a user defined edge detection algorithm that is tailored to the application.

Claim 8 (Cancelled).

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9. (Previously Presented) Apparatus according to Claim 6, wherein the plurality of directions includes at least four directions.

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CJ*

10. (Previously Presented) Apparatus according to Claim 6, wherein one of said directions is normal to an approximate edge location.

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11. (Currently Amended) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for extracting two-dimensional image shapes of submicron structures formed by photolithography on semiconductor wafers, from image data on a pixel array, the method steps comprising:

selecting obtaining intensity vs. pixel information in along a plurality of scans extending in different directions, through substantially the same point, in the vicinity of an edge of the image shape;

recognizing scans with sufficient contrast as containing edge information;

subjecting acceptable the recognized scans to an edge detection algorithm;

detecting the edge location of the image by using said edge detection algorithm; and

generating a locus of points that define the two-dimensional shape of the image from the detected edge values.

12. (Original) A program storage device according to Claim 11, wherein the edge detection algorithm is a user defined edge detection algorithm that is tailored to the application.

Claim 13 (Cancelled).

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14. (Currently Amended) A program storage device according to Claim 11, wherein the selecting obtaining step includes the step of selecting obtaining intensity vs. pixel information in at least four directions.
- B1 CDA*
15. (Original) A program storage device according to Claim 11, wherein one of the directions is normal to an approximate edge location.
16. (Previously Presented) A method according to Claim 1, wherein the plurality of directions are angularly spaced apart about 22½ degrees.
17. (Previously Presented) A method according to Claim 1, wherein the plurality of directions are angularly spaced apart about 45 degrees.
18. (Previously Presented) Apparatus according to Claim 6, wherein the plurality of directions are angularly spaced apart about 22 ½ degrees.
19. (Previously Presented) Apparatus according to Claim 6, wherein the plurality of directions are angularly spaced apart about 45 degrees.
20. (Previously Presented) A program storage device according to Claim 11, wherein the plurality of directions are angularly spaced apart about 22 ½ degrees.

*Scully
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B1
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21. (Previously Presented) A program storage device according to Claim 11, wherein the plurality of directions are angularly spaced apart about 45 degrees.